LEARNING LANGUAGES LIKE CHILDREN

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In 1984, the American University Alumni Language Center in Bangkok started using a new version of the natural approach to teach the Thai language. In publications it has been referred to as 'The Listening Approach', but in Thailand it was first called 'The Natural Approach'. In more recent years it's become known as 'Automatic Language Growth' or 'ALG'. Like natural approaches elsewhere, it is based on the principle that understanding real language use is the only thing that leads to natural language acquisition. But unlike the others, it claims that any attempt to speak (or even think about language) before natural speaking comes by itself will cause irreversible damage and impose a ceiling on the final results! This article reports on the Automatic Language Growth Program (ALG) over the first sixteen years of its development.

ONE - THE CHILD'S SECRET

It is common knowledge that when people move to a new country the children will end up speaking the language natively and the adults won't. The widely accepted explanation is that children have a special 'gift' that they lose as they grow up. Even with the coming of the age of science this 'gift' theory went unquestioned, and early linguists thought some special remedy was needed. They proposed that, for adults, languages should be *taught* and *studied* instead of *picked up*. And this idea slowly evolved into present day language teaching.

But are we any better off with present day language teaching? Why, for example, do adults in Central Africa clearly do better when they move to a new language community than our modern students do? Could it be that early linguists (and all the rest of us) were mistaken? Maybe adults can do what children do. Maybe it's just typical adult behavior (not adult inadequacy) that interferes.

> *THE MISTAKE - Children can do something that adults cannot.*
>
> *THE UNASKED QUESTION - What would happen if an adult were to just listen for a year without speaking?*
>
> *OUR ANSWER - Both adults and children can do it right, but only adults can do it wrong.*

Imagine a 4 year-old child and an adult reacting to somebody talking to them in a foreign language. The child most often just listens, while the adult usually tries talk back. Now suppose that 'not trying to speak' was the child's secret. It could be. After all, doesn't it make sense that listening to things that are always right would tend to build the language right, while saying things that are always wrong would tend to build it wrong? It makes you wonder what would happen if adults were to do the same thing children do, (that is, just listen for a year or two without trying to say anything). It would be worth finding out. But it seems that this experiment was never tried. Not until recently, that is.

In 1984, the AUA language center in Bangkok started doing precisely this in its Thai classes. The students just listened for as much as a year without speaking at all. We found that adults get almost the same results that children do. If adults understand natural talk, in real situations, without

trying to say anything, for a whole year, then fluent speaking with clear pronunciation will come by itself. A lesser period of not speaking will produce proportionately less-perfect results.

It seems that the difference between adults and children is not that adults have lost the ability to do it right, (that is, to pick up languages natively by listening) but that children haven't yet gained the ability to do it wrong (that is, to spoil it all with contrived speaking). We're suggesting that it's this contrived speaking (consciously thinking up one's sentences — whether it be with translations, rules, substitutions, expansions, or any other kind of thinking,) that damages adults, even when the sentences come out right). We're also suggesting that natural speaking (speaking that comes by itself) won't cause damage (not even when it's wrong). It seems that the harm doesn't come from being wrong but from thinking things up.

Now it would appear that the brain is incapable of this kind of contriving before the age of 10–12, so the children are automatically protected; whenever natural sentences don't 'pop into their heads' they have to keep quiet. Of course children do come up with lots of ill-formed sentences, but these sentences aren't contrived; they pop out of incompletely formed language. But with adults, whenever a sentence fails to pop they contrive one. You can spot this contriving from the typical hesitation sounds (uh…er…mmm…) as they struggle. These sounds suggest that they're building the language in the wrong place — the place that thinks. This part of the brain is the adults' pride and joy, but it sure is an awkward place to put a language. Now the question is how can we get the language into the right place? And the ALG answer is to just stop 'trying to think it in' — to simply switch channels from 'try' to 'let'. And it seems that the 'let' channel is still alive and well in the adult brain. Nothing has been lost.

What we're suggesting is this. The reason that children always end up as native speakers is because they learn to speak by listening. And the reason that adults don't is because they learn to speak by speaking. But how can we explain this? How can an accumulation of listening and understanding alone lead to the ability to speak? The answer was given by William Powers. He said that when we try to make a given sound, hum a given tune, or say a given word (as examples of a more general theory), it's the memory (or mental image) of the sound, tune, or word that controls its production — not our muscles. And the correctness of the product depends only on the correctness

of this image. Powers called these images 'reference signals'. They are, in this case, sound images that have been either stored or neurally computed. So to speak a language perfectly, all we need is a complete set of perfect reference signals. And reference signals are acquired through perception — not production. In other words, we don't learn to speak by speaking; we learn to speak by listening (with understanding). There were two important ideas that led to our understanding of the child's secret. (1) Stephen Krashen's idea that language acquisition comes from understanding rather than speaking, and (2) Powers' idea that speaking is controlled by mental images of sounds, words, sentences, etc. — not by muscles. But Krashen's theory wasn't working nearly as well with adults as with children and the AUA experience suggested the reason. Adults talk too much. And while everything they hear makes their reference signals better, everything they say makes them worse. It was a losing battle — even with Krashen's suggested 'silent period' of 10 hours or more. A third step was needed. Students' speaking had to be eliminated completely.

> *It's the sounds in your head that form the sounds that come from your mouth.*

So it looks like the child's secret doesn't consist of a young brain passing through a magically receptive period at all. The formula seems to be this: 'Listen', 'Don't speak', and 'Be patient'. And now it appears that this is not only the child's secret. It's everybody's secret. And while children do it more faithfully, adults can do it faster. For a 'difficult' language (like Thai for English speakers), it looks like adults can usually move twice as fast as babies. That is, they can become 2-year-olds in a year.

TWO - HOW ALG WORKS

Most language teachers throughout the world are constantly telling their students to try to speak as much as they can, and to think carefully before they say anything so they'll get it right. And now I'm saying that this kind of speaking and thinking is the very thing that keeps adults from learning languages well. But take careful note of the following point. And keep coming back to it every time you feel a strong opposition to the ALG position.

As opposite as our positions may seem, there is actually no disagreement. We're just doing different things. With ALG we're interested in natural language acquisition, while most of the world is settling for an artificial use of foreign languages by adults. They're teaching their students to 'contrive' sentences. We're teaching ours to 'improvise' them.

And surely there's no argument as to which one is better — it's just that most of the world believes that natural language acquisition is impossible for adults, or at least that it would take too long to be practicable. And the purpose of this article is to show that it is both possible and practicable.

This will become clearer in part Four. But first we'd better try to make our counter-intuitive position seem more intuitive, or we might not have any readers left by part Four. So we'll offer a little common sense theory here to show that we are simply following the natural working of the brain. Now we don't claim to have any privileged information about how the brain works, but our experience may have given us some fresh kinds of guesses. Having identified them as guesses here, we won't label them as such below. This will make for easier reading. But whenever the reader thinks it's necessary, he should add something like this to each sentence of part Two; 'we think that…' or 'It looks like…'.

Memories are the brain's natural way of recording things. Vast scenarios can be recorded in an instant and stored away for life. We record so many memories every day that the brain has to sort them out and systematize them for more efficient storage. And this is what natural knowledge is; systematized memories. The word 'dog' for example, (an example of knowledge, not a memory) has been abstracted from thousands of memories of dogs (most of which have since been erased in order to provide new space).

So natural systematization of memories is one way to produce knowledge.

But there is also another way. It uses memory instead of memories. Memory refers to the brain's way of storing facts and figures (as opposed to happenings). This isn't natural. It takes tricks or hard work to record something as simple as a phone number. So there are two different kinds of knowledge. Natural knowledge is the child's way; it is instantly available without thinking, and it can last a lifetime. Artificial knowledge is the adult's favorite; we have to think about it in order to use it, and it's easily forgotten.

Forgetting is an attribute of artificial knowledge and plays little or no part in natural language acquisition. But our students didn't know this, and when they returned after being away for some time they thought they would have forgotten a certain amount. But we were in for a surprise. They often reported that they were actually ahead of where they left off. (I myself experienced the same thing after a five-month break from my natural acquisition of Swatow Chinese).

How can we explain this? It looks like we don't learn language in class at all. We just store away memories of what happened there and subconsciously sift language out of these memories later. But memories consist of happenings, not words. Sure we can build knowledge out of happenings—but a language? Where do the sounds of new words come from? Well it looks like we've got a third kind of knowledge. A kind that grows out of repeated traces carried by memories. Every trace that eventually grows into a word is associated with a happening. We remember only the happenings, not the traces; but the brain records the traces as well. (Psychologists have detected these traces and refer to their recording as 'priming') Now words have both meanings and sounds. And in natural language acquisition, the meanings are distilled from memories, while the sounds accumulate from the sound traces carried by these memories.

> *The brain can't use sound traces to speak with, but it can use them to build language with. It's the recognition of this fact that is the whole difference between ALG and other natural approaches.*

Now the brain continues to build language out of memories of happenings and traces of sounds while the students are away. Class time can be compared with eating a meal. Digestion and growth take place later.

Earlier we spoke of 'building language in the wrong place — the place that thinks'. And from that point on we have been contrasting two different kinds

of brain activity. Let's compare them by lists.

'Try'	**'Let'**
conscious	subconscious
memory	memories and traces
facts and figures	happenings
'tricks and hard work'	'recorded in an instant'
teach and learn	pick up
artificial knowledge	natural knowledge
artificial language use	natural language acquisition
have to think	don't have to think
contrive	improvise
easily forgotten	stored for life
muscle control	image control
the adult's way	the child's way

But a theory built out of vague words like these isn't going to be very productive. We need concrete units in our theory — things that we can point to in space and in time. And we want those parts to be the actual things that are involved in processes like understanding, learning, and speaking. In other words, we want a theory built out of neurons, or areas of the brain, or something like that.

Of course we don't know enough about the brain to actually do this, but we can at least try to place our vague words somewhere in the brain. Pictures of different parts of the brain in textbooks of neuroanatomy, for example, reveal different kinds of neurons stacked in different ways and affording different kinds of computing activity. We can visualize our two lists as being in two different rooms in the brain; one labeled 'try' and the other one 'let'. The important thing is not that these areas are in different places (in fact, it is possible that they are interspersed), but that they do different things; that is, they process information from the receptors in different ways. Now we're suggesting that the baby is born with the 'let' room, while the 'try' room slowly develops to an operable stage by age 10-12. The adult, then, has both rooms, and he switches from one to the other as required by the task. But modern education seeks to increase the use of the 'try' room, even when the 'let' room would be more appropriate. And the adult language student

is caught in a conflict: natural forces are trying to turn his switch to 'let'; while the forces from years of schooling are trying to turn it to 'try'.

This distinction has long since been noticed by others. W. Timothy Gallwey calls it 'Self 1' and 'Self 2'. And Krashen calls it 'conscious' and 'subconscious'. We're just trying to make the same distinction more concrete by picturing it as different neural hardware in the brain.

> *We are assuming two points which are unproven and thus open to argument.*
>
> 1. *A theoretical assumption: The brain does indeed have the different capabilities described in this section.*
> 2. *A finding from practice: Natural language acquisition is indeed both possible and practicable for adults.*

If we really want to know how language acquisition works, we need to understand how our receptors receive input from the outside and then process it into language. After observing this happen in our students for many years as well as experiencing it within ourselves, we've come up with a budding brain theory to explain it. But this is not the place for such a theory, and we will deal with it in later publications. For our present purposes, all we need is to give a feeling that when left to itself the language will inevitably form — and form perfectly. And we can do this a lot better with a simple comparison than with an abstruse and incomplete theory. Here's the comparison.

If we let rain fall on a given terrain, one and only one river system can result. And no engineer is needed. Nor could an engineer duplicate the system if he tried.

As long as we don't interfere (that is, as long as we just 'let' it happen), the building of a given river system depends on only three things; the weather (wind and rain), the terrain (the composition and shape of the ground), and gravity. An elaborate river system will inevitably be carved in one and only one way (with minor variations) from a given kind of weather acting on a given terrain. And if an engineer 'tried' to influence the formation of this system, he could only upset it in an irreversible way.

In like manner, as long as we don't interfere, the building of a given language in a given individual depends on only three things; the language input (like the weather), the nature of the language part of the brain (like the terrain),

and the chemistry of neural transmission (like gravity). A person's native language is not the result of building the neural structures that we call language to match a pre-existing plan. It is the inevitable result of a given neural structure being buffeted by a given kind of input. And if we try in any way to influence this formation, we can only upset it in an irreversible way. The typical way that adults interfere with the process is to try to speak from a trace (before the full sound has been formed). But since the brain can't use traces to speak with, the only way they can do this is to build the complete sound themselves (either from sounds in their native language or from their knowledge of phonetics). And once they do this, there is no going back. Subsequent buffeting will act on what they've already done to the terrain. Compare this with a man-made channel in the river system. Once it starts carrying water, the engineer can't restore the overall system to what it would have been no matter how hard he tries. And 'what it would have been' (in the case of language) is precisely that language that native speakers speak.

THREE - PUTTING ALG IN THE CLASSROOM

We look at children who have moved to a new country, and we see them 'listen, giggle, and stare'. Then we watch adults who have married into a jungle village that speaks a different language. And we see them just 'tag along' (the men on the hunt, the women in the gardens and kitchens) and 'sitting around the fire' (for nighttime story telling). Both types are using the child's secret; ears open, mouths shut, and no deadlines. And both become near-native within two years. Then we look into language classrooms around the world, and we see just the opposite; ears practically closed (the students are relying on their eyes instead), mouths open, and constant deadlines. And hardly any of these students ever become near-native. But now that we know that the adult brain can use the child's secret, we're ready for the next question; can we adapt this secret to the needs of modern students? And we see two possibilities. Either 'bottle it' for classroom use (taking our cue from 'sitting around the fire') or get out of the classroom and 'tag along'.

Just how can we go about 'bottling it'? The secret seems to lie in the channel that the input uses. In the nurseries and the African villages, the 'let' channel is always open, and happenings pour in to become memories (from which the brain later makes language). Also there is unlimited patience. But when you put adults in a classroom and set a date for successful completion, the 'try' channel automatically switches on. Words pour in (instead of happenings), and become facts (instead of memories). And all this takes place in the conscious thinking brain (instead of the subconscious language brain). So the essential precondition is to keep the 'try' channel closed. Two things are needed. First, the happenings must be so interesting (fun, exciting, suspenseful, etc.), that the students forget that a new language is being used. And second, the students understanding must be high enough to keep them tuned in — and this means 60–80% from the very first day! It takes a lot of work to train guides how to maintain adequate levels of both interest and understanding at the beginning level. But once they get there, it is a delight for both students and guides.

FOUR - MEASURING ALG

Learning usually depends on the varying levels of intelligence, motivation, and hard work of the students, and the usual way to *measure* this learning is to *test* each student. But *natural* language acquisition depends only on *exposure*; so it's a lot easier (and a lot more accurate) to just measure the amount of exposure (actually the amount of *understanding*). With babies we measure their progress by their age. If someone says her little boy is 21 months old, that tells us more about how much language he knows than any test could. For children and adults, though, the rate of input is far less constant than it is with babies, and we have to find a way to count or estimate the number of hours of talk they have understood. (This is the subject of the next section.)

As a result of years of study and more than 40 years of observing the progress and abilities of literally thousands of students of second languages from over 50 different countries and cultures, we have found the following equation to be remarkably accurate. *(Please note that as you read through this section and follow the development of it, you may be tempted to discount our conclusions based on your own experience or that of someone you know. If you save your exceptions until later and follow our reasoning however, you will probably see that we account for such factors as our thoughts develop.)*

The BASIC LANGUAGE ACQUISITION EQUATION: $y = 1 - e^{-kx}$

where	y	is how much language they know (1 = native).
	x	is how many hours they have understood.
	k	is the acquisition constant: .0018
	e	is the natural logarithm base: 2.718

If a student accumulates 1000 hours of understanding Thai, for example, his acquisition of Thai will be 83%.

Or if we want to know how long it would take a student to get to 90% (this is a degree of fluency that structural students hardly ever attain), the equation tells us 1300 hours of understanding.

We usually think of complete immersion as the ultimate in exposure, but let's look at a typical example. Suppose you're exposed to *speaking situations* for 8 hours a day (meals, chatting, games, etc.). This isn't non-stop talking, though, and it may come to only 4 hours of actual talk. And if half of this

talk is your own, that's only 2 hours of listening. An if you're understanding 50%, that's only 1 hour of understanding a day. It would take you almost 4 years to accumulate the 1400 hours needed to become 'fluent'. (We use 'fluent' to mean 'speaking *correctly* and *without hesitation about everyday matters*': roughly, $y = 88\%$).

More often, foreigners live with their own families, and their exposure consists only of managing their daily affairs in the new language. This may seem like a lot of exposure, but when you add up the few seconds here and few seconds there and multiply this by your percentage of understanding, it rarely exceeds 10 minutes a day. At this rate, fluency would take 23 years.

Hours of understanding isn't always clear in terms of months and years: normal life is so irregularly packed with talk, and talk is so irregularly understood. But ALG classes consist of non-stop talking and offer a much higher percentage of understanding than real life does.

Our first equation assumed that the student was doing everything right. This always works for children, but only occasionally for adults. For even though adults can do it right, they usually don't. So the measure of how correctly an adult does it (we'll call it C, for ceiling) becomes a crucial addition to our equation. It will be convenient to express C as a percentage, so y will also be a percentage; and 100 instead of 1, will be the measure of a native speaker.

Now to figure out how much a student knows (y), we've got to know how many hours (h) the student has experienced, how much he has understood (u), and how he has been processing those experiences. (C).

- h is simply the student's attendance.
- u can be estimated from the student's 'responses' during each hour. (We all tend to monitor a person's understanding in normal communication though we are normally unconscious of doing this.)
- C can be estimated from how much or little the student tries to repeat what he hears, the sort of questions asked, etc.

Periodically, the guides enter grades for the students based on their own perceptions. Once entered into the computer, we are able to monitor student progress. The average understanding grade for students is around 80%. Ceilings vary much more, but for a typical, adult student who begins with ALG the ceiling average is around 95%.

The first 13 students to show signs of natural speaking in our ALG classes were Chinese and Southeast Asians — even though the majority of our students were Westerners. It was only after we expanded our course to more than 1000 hours that other students started to reach this level. We soon saw that any level that required 1000 for Westerners and Japanese could be reached in about 800 hours by Chinese and about 600 hours by Southeast Asians. This suggested a 'language ease' factor (L) for our equation. For the Chinese learning Thai, $L = .8$; and for most Southeast Asians, $L = .6$.

$$y = C(1 - e^{-kx/L})$$

The language ease has come to be called the Native Language Factor but there is more and more evidence that culture rather than language is the bigger influence.

So far, we have had little experience with the native language factor from English to French, German, and Spanish; but if Malaysian–Thai is .6 without the help of cognate vocabulary (the languages aren't related and the only similarities are in culture and type of grammar), we would expect something more like .4 for these European languages. These and other guesses are shown below. Readers with better information can sharpen up these guesses. The hours and weeks refer to the amount of time required to reach a fluency of 88%. For the calculations below, the understanding factor is set to .8 and the ceiling factor is set to .95.

L Factor	Examples	Hours
1.0	English–Thai	1800
1.0	Japanese–Thai	1800
.8	Chinese–Thai	1450
.6	Malay–Thai	1100
.4	English–French	720
.4	English–German	720
.4	English–Spanish	720
.2	Portuguese–Spanish	370
.1	Thai–Laotian	180
.1	Norwegian–Swedish	180
.06	Norwegian–Danish	110

There is yet one more factor that must be considered. The quality of the program affects how students in the program progress. In life, a baby au-

tomatically experiences everything that happens — and whatever else they are, those experiences are 100% *real*. Once you put adults into a classroom (or any other setting), the quality of the experience is affected by what the adults *do*. Adults don't interact with other adults as they do with children. We call this the reality factor (r). The more the experiences in and out of a classroom replicate what happens in real life settings with children, (in terms of quality not content) the greater the reality factor. Our Thai Program in Bangkok has a reality factor of .83 while the English Program for Thais at the time of this writing is currently at .7 and rising slowly. (A closer look at the reality factor would include the guide quality, the quality of memories, and the intensity of the experiences.)

People often ask for the fastest possible way to learn a language. Maximizing C, of course, is what this article is all about. It goes without saying that students who want the fastest possible course should do it 100% right. There are other variables. The amount of time a student is able to absorb experiences is one of them. At one hour a week, progress is very slow. What about much more? Many of the students in the Thai Program take as many as 30 hours per week and that's mainly in a classroom setting. By moving out of the classroom and scheduling activities in a dormitory atmosphere, we have been able to go as high as 50 hours per week. We've called it the "Max Program" and more recently, ALG World Edu-Tours. It involves experiencing life together with the guides. The weekly routine includes classes, meals, morning exercises, evening games, nighttime entertainment, and sightseeing. All of this takes place in the new language, and all of it is controlled for maximal understanding. One major advantage of the Edu-Tours is that they not only maximizes time, they also maximize the reality factor. If a school is able to provide for a reality factor of .8, then Edu-Tours should be able to provide experiences at 1.

FIVE - PUTTING IT IN SCHOOLS

We believe that almost every language school, department, course, or class in the world could do its job better with ALG. But we're not suggesting for a minute that any of them should immediately try to change over. We feel certain that they couldn't do it. It isn't easy to start up an ALG course and any hurried attempt would almost certainly fail.

Most universities teach languages at one hour a day plus homework, and they give tests, grades, and credits. We could put ALG into this framework by having the students attend two hours a day, without homework, for the same credit. Grades are calculated by the equation. For an 'easy' language (like French, German or Spanish), fluency would take 5 semesters (for 600 hours of understanding at 80%) and give 25 credits. But for a 'hard' language (like Chinese, Japanese, or Thai), fluency would take 12 semesters for 60 credits. This doesn't seem to be practicable. But many universities already have intensive summer courses in languages, and this should give us an answer. During a 12 week summer term, ALG could be taught for 7 hours a day. And even better, a Max Course could be offered. With a Max Course, French could be taught to fluency in a single summer. Probably the most practicable solution for teaching Japanese to fluency would be 2 summers of a Max Course plus 2 hours a day during the school year between the two summers. The summers would offer 600 hours of understanding each, and the 2-hour semesters would offer 120 hours each for a total of 1440 hours of understanding and 60 credits.

(At the time of this revision, ALG World is currently developing the ability to partner with anyone who might be interested in using the method. This allows for programs of any kind to utilize and build upon the foundational work that has already been done. Any interested parties should contact admin@algworld.com for more information on materials or franchise opportunities.)

NOTES

1. See The Listening Approach by Brown and Palmer. Longman, 1988.
2. See The Natural Approach by Krashen and Terrell. Alemany Press.

3. Many people have commented on this. See, for example, page 27 of Learning a Foreign Language by Eugene A. Nida. Friendship Press. 1957

4. See Behaviour: The Control of Perception, Aldine Publishing Co., 1973, and Living Control Systems, Gravel Switch, Kentucky, 1989.

5. See The Inner Game of Tennis, Random House, 1974.